

Airport Gate Activity Monitoring Tool Suite for Improved Turnaround Prediction, Phase II

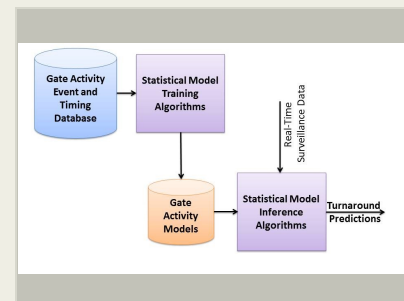
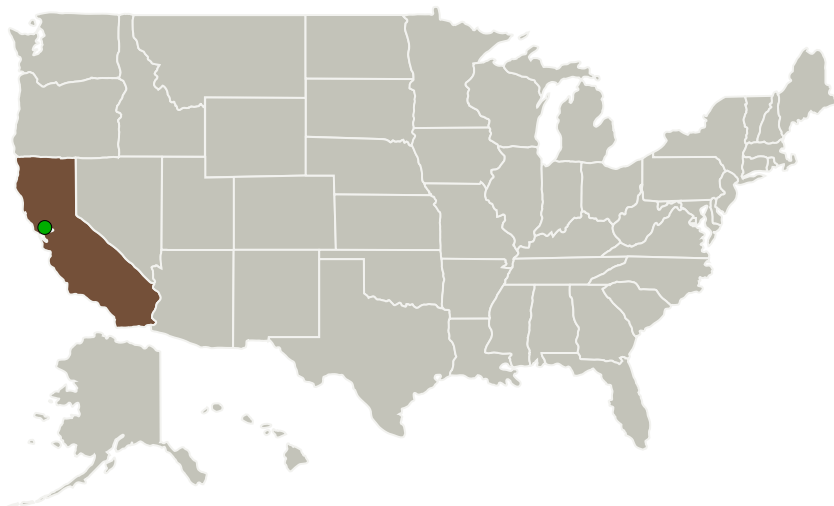
Completed Technology Project (2016 - 2018)



Project Introduction

The goal of this research is to create a suite of tools for monitoring airport gate activities with the objective of improving aircraft turnaround prediction. Airport ramp areas are the most crowded and cluttered spaces in the entire National Airspace System (NAS). Operations associated with turnaround of the aircraft from the gate represent a significant source of delay and therefore impact the predictability of NAS operations. The computer-vision-based Gate Activity Monitoring Tool Suite (GAMTOS) will specifically identify the various stages of turnaround such as refueling, baggage handling, and deicing. It will further employ a probabilistic model of the times associated with each of these events, that will be used for predicting the future sequence of events and their predicted times of completion. We seek to leverage our expertise in monitoring aircraft using the Vision Based Surveillance System (VBASS) currently being developed under a Phase III SBIR research from NASA Ames Research Center. At the end of Phase II, the GAMTOS software is expected to operate in two different modes. The first mode is an offline mode, which generates a database of gate activities, their timings, and their sequence. The second mode is a real-time mode which involves continuous monitoring of activities and prediction of future activities.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Optimal Synthesis, Inc.	Lead Organization	Industry Small Disadvantaged Business (SDB)	Los Altos, California
● Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations

California

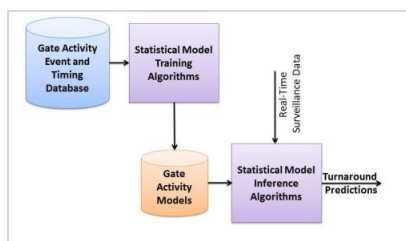
Project Transitions

**May 2016:** Project Start**May 2018:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/139658>)

Images



Briefing Chart Image

Airport Gate Activity Monitoring Tool Suite for Improved Turnaround Prediction, Phase II
(<https://techport.nasa.gov/image/129109>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Optimal Synthesis, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

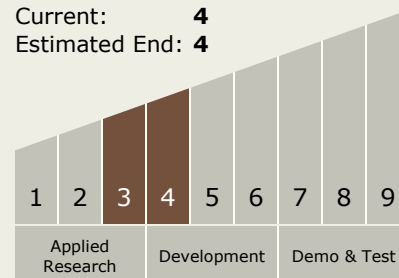
Carlos Torrez

Principal Investigator:

Hui-ling Lu

Technology Maturity (TRL)

Start: 3
Current: 4
Estimated End: 4



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Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
 - └ TX16.3 Traffic Management Concepts

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System